HYPERTENSION

I. INTRODUCTION

High blood pressure is defined as a systolic blood pressure (BP) ≥140 mm Hg and/or diastolic blood pressure ≥90 mm Hg obtained on two separate readings taken at least 1 week apart.

The prevalence of hypertension is higher among minorities than whites, and it increases with age in all groups. There is increased morbidity and mortality associated with the following cardiovascular complications of hypertension:

A. Aortic dissection
B. Congestive heart failure
C. Coronary artery disease with associated angina pectoris and myocardial infarction
D. Left ventricular hypertrophy
E. Peripheral vascular disease
F. Renal insufficiency
G. Stroke secondary to cerebral hemorrhage or thromboses

Hypertension in pregnancy is associated with higher risk of complications including preeclampsia, placental abruption, fetal growth restriction, intrauterine fetal demise, worsening maternal cardiac function.

II. PRINCIPLES OF HYPERTENSION MANAGEMENT

A. At the level of pre-hypertension, interventions to change lifestyle factors (diet, exercise, smoking) that affect risk should be recommended.
B. Even clients with labile hypertension or intermittent elevations of blood pressure are at increased risk of later developing persistent hypertension and should be informed of this and observed at regular intervals:
C. Hypertension control begins with detection and requires close surveillance.
    1. The initial evaluation of the hypertensive client is designed to establish the diagnosis of hypertension, determine its severity, and assess the need of treatment. This evaluation should include:
        a. A complete medical, family and social history
        b. Physical examination
        c. Assessment for presence of other cardiovascular risk factors (including obesity, smoking, hyperlipidemia, and diabetes)
        d. Determination of need for additional diagnostic evaluation including evaluation of organ involvement
D. Once a client is diagnosed with hypertension, the goal of therapy is to reduce cardiovascular morbidity and mortality.
    1. The goal should be normalization of blood pressure (140/90) for clients with uncomplicated hypertension, and to lower diastolic blood pressure to levels less than 80 mmHg and lower systolic blood pressure to levels less than 120 mm Hg for clients with other risk factors
    2. The severity of blood pressure elevation and the presence of other complications including organ involvement determine the antihypertensive treatment.
    3. Even clients with prehypertension can benefit from antihypertensive therapy.

4. Treatment can prevent progression to more severe levels of hypertension.
5. Nonpharmacologic approaches may be useful as an initial therapeutic regimen and as definitive therapy for some clients. Modifications in diet and lifestyle are generally difficult to achieve, but have been proven to be effective in hypertensive clients. Exercise, weight reduction, restriction of alcohol and sodium, and other lifestyle changes are not costly, and are beneficial in promoting good health for hypertensive and normotensive clients.

III. MEDICAL EVALUATION

A. Blood pressure should be measured and the client should be informed of his/her blood pressure reading at each visit.
B. Blood pressure measurements must be accurate and reproducible.
C. Proper technique is important and should be as follows:
   1. The client should avoid cigarettes and caffeine for 30 minutes before the blood pressure measurement is taken.
   2. The client should sit quietly for at least 5 minutes and remain seated during measurement, with the arm parallel to the floor and at the level of the heart.
   3. The sphygmomanometer cuff size should be adequate for the arm circumference and should not be too tight or too loose.
   4. The sphygmomanometer bladder length should encircle approximately 80% of the arm circumference.
   5. Inflate the bladder to 30 mm Hg above the level where the radial pulse is occluded. The systolic blood pressure level is the appearance of the first sound and the diastolic blood pressure level is the disappearance of sound.
   6. Repeat the measurement after 2 minutes and average the readings.

IV. MANAGEMENT OF ELEVATED BLOOD PRESSURE:

A. Those clients with a diastolic BP 90-100 mm Hg should have a repeat evaluation within 4 weeks. If the BP is still elevated, refer the client to a private health care provider of her choice for medical management.
B. Refer all clients with a diastolic BP >100 mm Hg for immediate medical management.
C. When the diastolic BP is <90 mm Hg, but the systolic BP is 140-199 mm Hg, the client should have a repeat BP within 4 weeks. If the BP is still elevated, refer the client to a private health care provider of her choice for medical management.
D. When the diastolic BP is <90 mm Hg, but the systolic BP is ≥200 mm Hg, refer the client for immediate medical management.
E. Counsel smokers about the health benefits of tobacco cessation. Clients can be referred to the Quitline (1-800-QUIT-NOW).
F. There is a strong correlation between body weight and blood pressure. Weight reduction to control obesity can result in decreases in BP. Obese clients should be referred to weight reduction programs.
G. Exercise programs should be encouraged.
H. Ingestion of more than 2 ounces of alcohol per day is associated with an increased prevalence of hypertension. Those who drink should moderate their alcohol consumption to no more than 1 ounce of ethanol daily. One ounce of ethanol is contained in 2 ounces of 100 proof whiskey, 8 ounces of wine, or 24 ounces of beer.

I. Some clients with hypertension may achieve BP control through moderate dietary sodium restriction. Advise clients to avoid adding salt to food during preparation or at the table, and to avoid processed foods to which salt is added as a preservative. Restrict sodium to 1.5-2.5 grams (or 4-6 grams of salt) daily.
J. Calcium intake should be maintained.

V. HYPERTENSION AND CONTRACEPTIVE USE

Women with pregnancy-induced hypertension, preeclampsia or eclampsia can use combined hormonal contraceptives or progestin-only contraceptives in the postpartum period as soon as the blood pressure is normal. All postpartum women should avoid combined hormonal contraceptives until at least 3 weeks postpartum. If breastfeeding, women may wish to avoid combined hormonal methods during lactation since estrogen may reduce breast milk supply.
Women with hypertension generally should avoid combined hormonal contraceptives due to an increased risk for cardiovascular events such as myocardial infarction or stroke (CDC MEC Category 3/4). Use of combined hormonal contraceptives are contraindicated (CDC MEC Category 4) in women with poorly-controlled hypertension or vascular disease.

Women with borderline hypertension who are using combined hormonal contraceptives should be monitored closely.

A. Combined oral contraceptives should be discontinued in a client who becomes hypertensive while using this method. The physiologic effect may take several weeks to resolve after stopping combined oral contraception.
All progestin-only contraceptives are acceptable for women with well-controlled or mild hypertension. The Depo-Provera® injection has limited evidence suggesting possible increased risk for cardiovascular events due to potential changes in the lipid profile (CDC MEC Category 3). Clinicians should weigh the risks and benefits of this contraceptive method vs. pregnancy for women with poorly-controlled hypertension and/or vascular disease.
B. Non-hormonal contraception or progestin-only IUD or implants, such as a copper IUD, progestin-only IUD or subdermal implant, should be considered for clients with uncontrolled hypertension and those with recurrent blood pressure elevations under the influence of combined estrogen-progestin contraceptives.
C. Women with hypertension may use progestin-only emergency contraception (such as Plan B®) without restriction.

VI. FOLLOW-UP

Clients with chronic hypertension should be encouraged to follow up with a primary medical provider for appropriate testing and long-term management of hypertension.

REFERENCES

Centers for Disease Control and Prevention. U.S. Medical Eligibility Criteria for Contraceptive Use, 2016. MMWR / July 29, 2016 / Vol. 65 / No. 3

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2. National High Blood Pressure Education Program. The Seventh Report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure. Bethesda, MD: U.S. Department of Health and Human Services, National Heart, Lung, and Blood Institute, NIH Publication No. 03-5233, December 2003